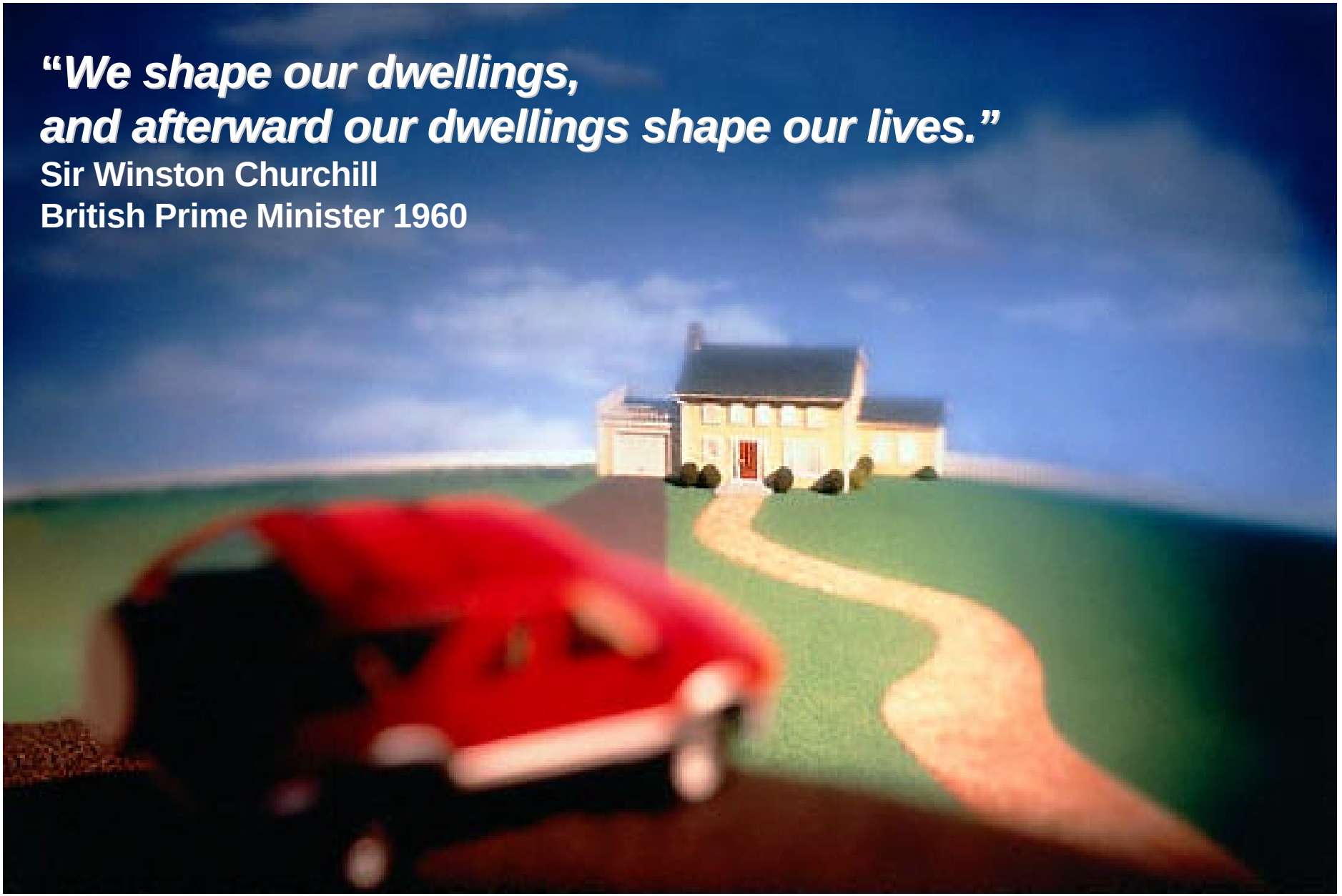



# GREEN BUILDING OVERVIEW

Barbra Batshalom
The Green Roundtable

## What is “Architecture”?

**Shelter** $

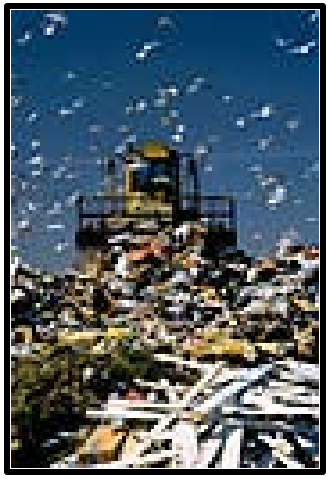
**Comfort** $$

**Aesthetics** $$$

# What do we get with our buildings that we don’t design or pay for?

Up until now, we haven't designed and built our environment in a manner that sustains itself - that is aware of the far reaching consequences of our actions and decisions.

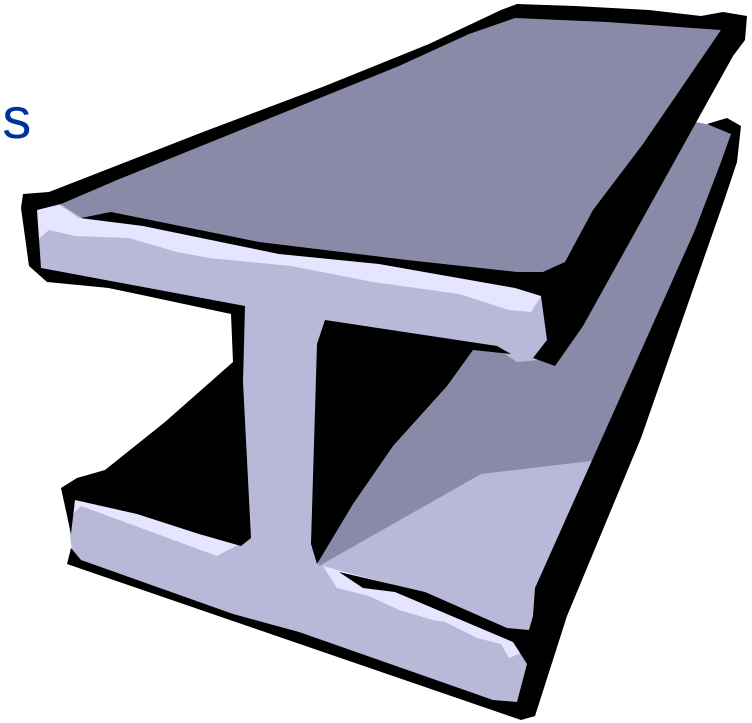
We haven’t been considering the whole picture. Green Building seeks to address these issues in a comprehensive way, looking at the bigger picture.



# BUILDINGS IN THE USA :

## Use

- **35 to 40%** of total primary energy use in U.S.
- **65.2**% of total US electricity consumption
- **30%** of the US wood & other raw materials
  (3 billion tons /year)
- **12%** of potable water in US



## Contribute

- **35-38%** to US air pollution
- **40%** to US Co2 release
- **32 to 40%** to the US municipal solid waste stream

(136 million tons of C&D waste in US = ~2.8 lbs per person/ day)

Estimate by the US Green Building Council

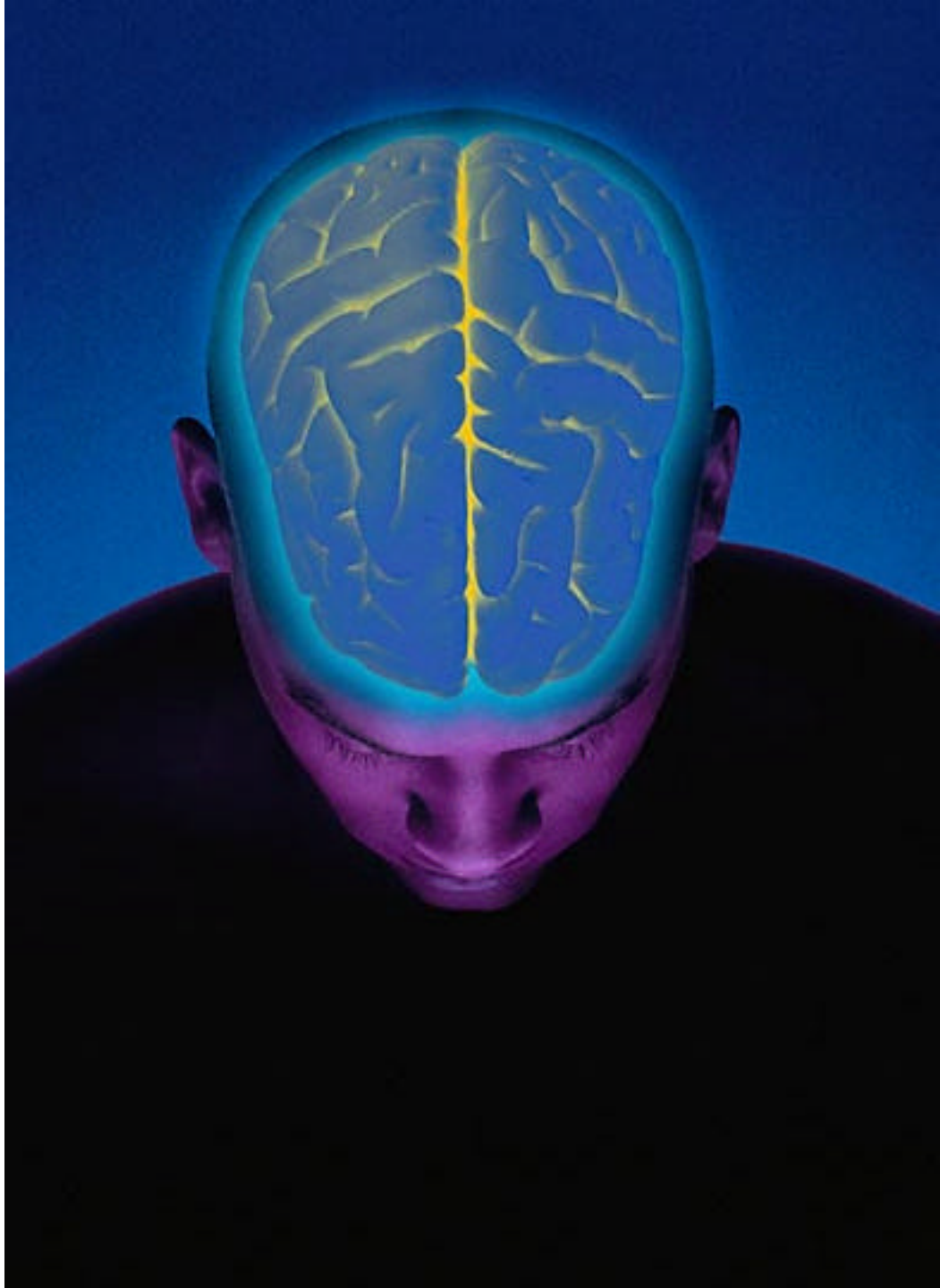
Our lens has been too narrowly focused
Not considering the larger picture….

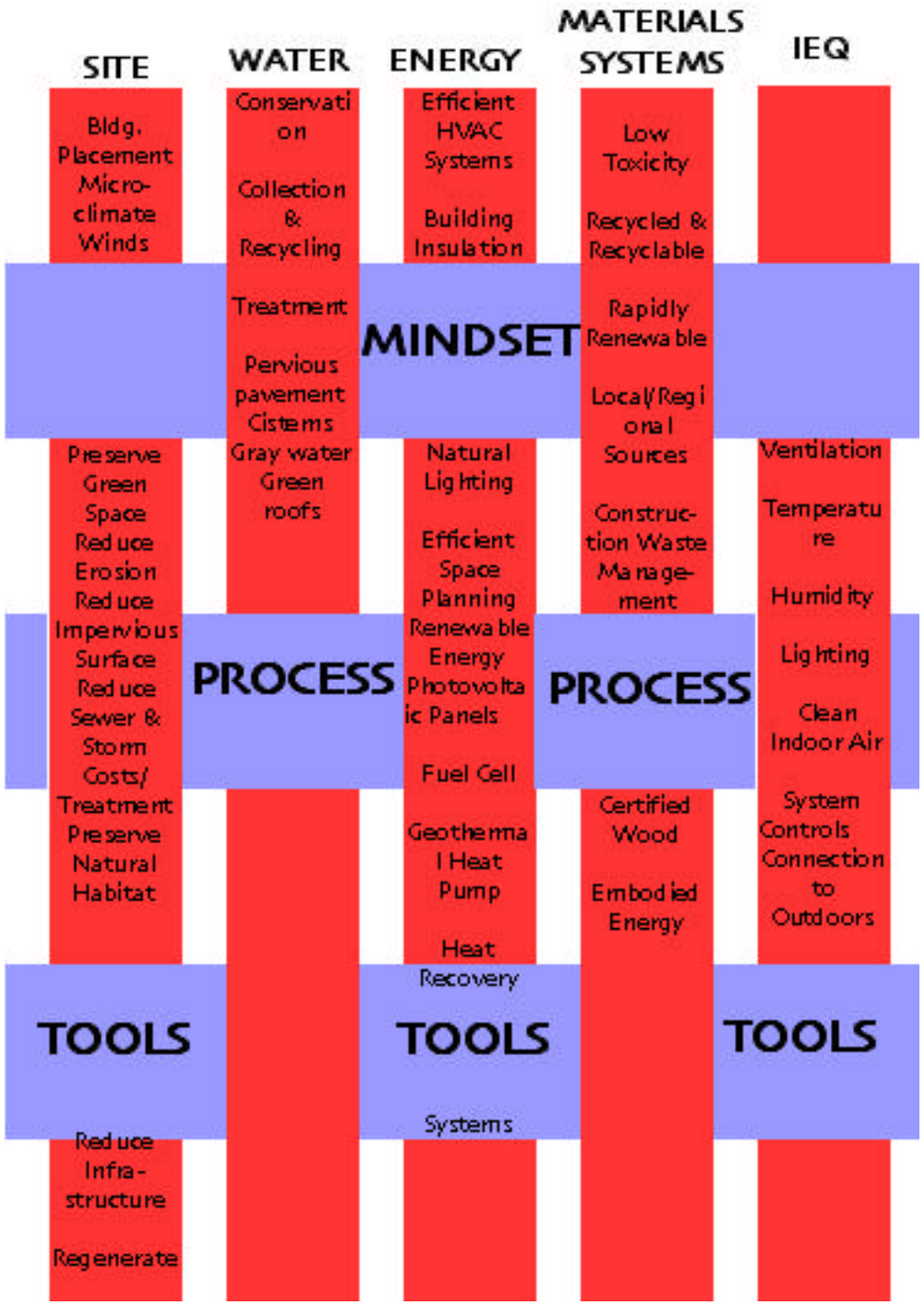
# Required:

1. A new **mindset**

2. A collaborative **process**

3. Knowledge of new **Stuff**





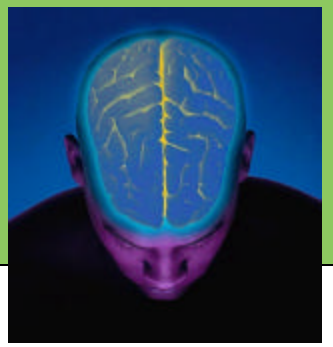

**First challenge - getting BEYOND the pieces.**

Weaving the Tapestry of our built environment

<u>Elements</u> of design
And pervasive <u>concepts</u> that determine the effectiveness of those Elements

We're dealing in SYSTEMS, not pieces.

# *First Element of Green Design:*
# The Mindset...



This is the most difficult, and opens the door to the most possibilities and gains

Recognizing that there are connections that we're not used to looking for…

Incremental goals or strategies yield incremental gains

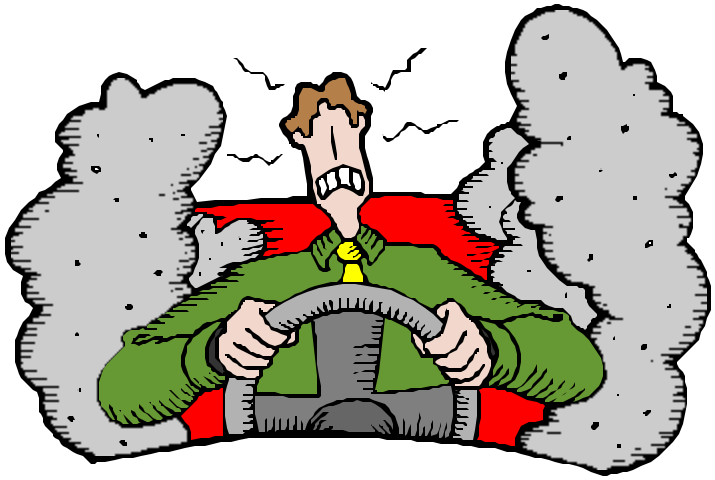
*Waste Cost Accountability Connections*
***(RISK)***

# WHAT QUESTIONS ARE WE ASKING?

*"Would you buy a car with poor gas mileage, poor safety standards, no operations manual, no personal air controls, no reuse potential and maximum maintenance needs?*

*If not, then why do we purchase these features in buildings where we spend 80% to 90% of our time?*"

-Rebecca Flora
Executive Director
Green Building Alliance - Pittsburgh
*The Cornerstone* Spring 2001



# WASTE

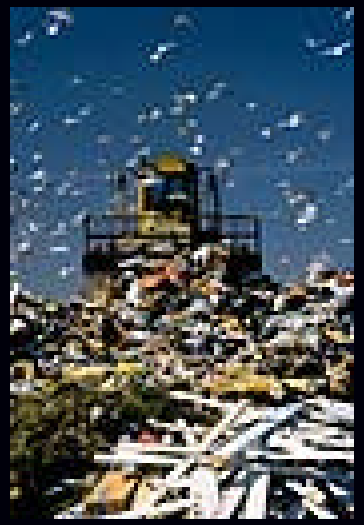
Why do we assume waste?

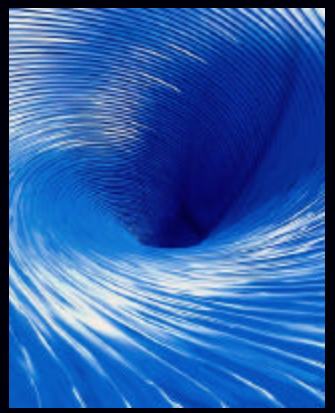
Why do we design for waste?

What if we audited all the waste from our buildings?
*Water,materials, energy...*

What if we **mined** our waste as a resource?

What if we integrated our systems?





# Infrastructure

What we do has many hidden Costs
…and less value
than we realize

**Water**
**Energy**
**Waste materials**
**Unnecessary redundancy**

Solely in the realm
of designers

We can not afford to assume that our current systems work and are effective

Current **R I S K ??**

# The Big $ Question

Capital costs

Operating Costs

*Hidden* Costs……

**Life Cycle Analysis approach**

## What is the size of your footprint?

Accountability
Of
design professionals

Set Expectations
clearly -

*Carrot not stick*

**MEASURE**

*You don't know if you succeed until you can prove it….*

# “A BUILDING IS AN OUTCOME - NOT AN OBJECT”

**B. Reed/H. Brown**

**Every project is a direct product of its context and depends on the underlying:**

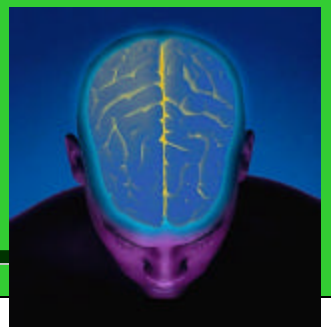
**Intentions**

**Relationships**

**Level of risk**

**Desired outcomes**

# Second Element of Green Design: ***The Process…***



A collaborative, integrated design process requires Buy-In from all stakeholders

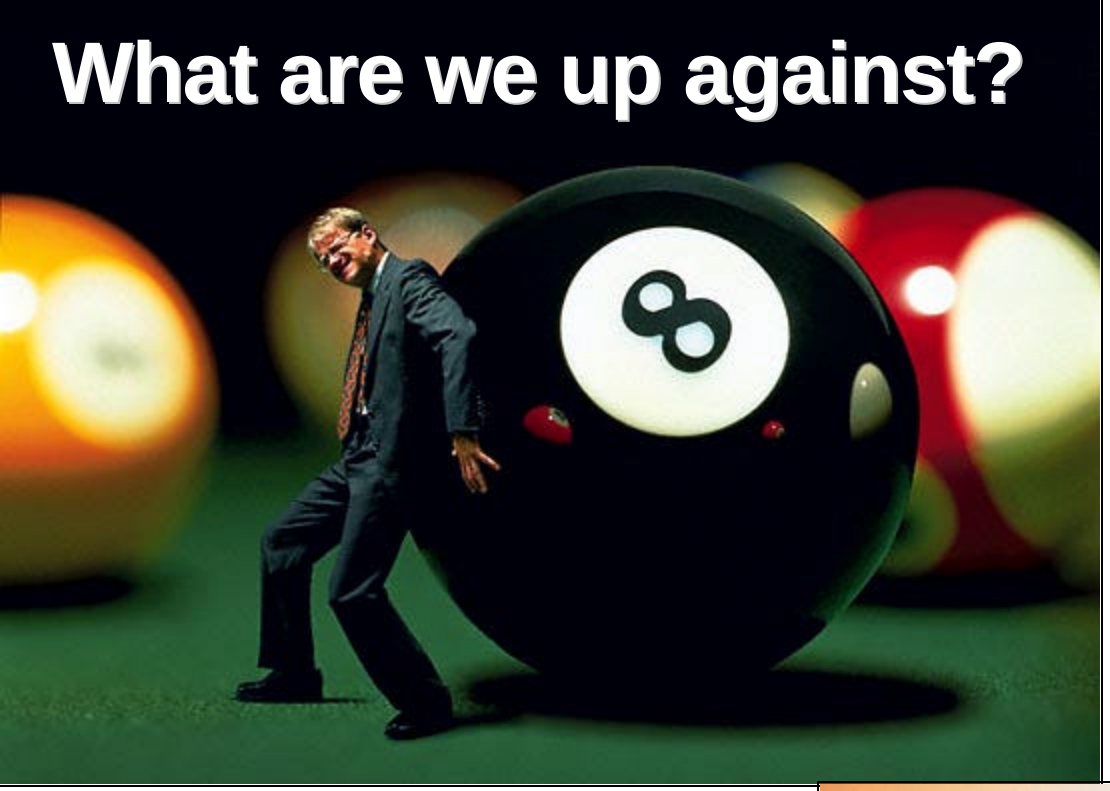
An interactive working style throughout the process, not just traditional meetings

A front loaded process

Evaluating decisions based on Life Cycle Issues rather than first cost

Deliverables / Contract language

# What are we up against?



I
have
to
add
something
NEW ?!?

This process is tough enough as it is…..

. . . How does this impact my role?

# Traditional Practice:

*Barriers and Opportunities*
*That affect project outcome*

**How do you:**

**Schedule ?**
**Budget ?**
**Coordinate ?**
**Learn ?**

**$ Change Orders**

## Collaborative Process

**WHEN ?**

As soon as possible -
*feasibility studies need to reflect full scope*

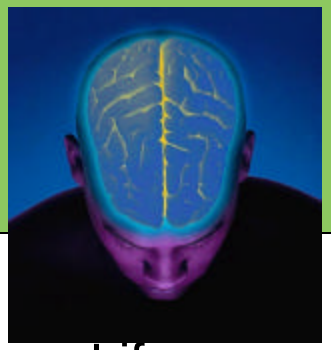
**WHO •?**

Everyone .. Input from landscape arch, facility manager/operator, contractor, community

**HOW ?**

Performance oriented, not prescriptive - exploit existing knowledge and expertise

# *Third Element of Green Design:*
# ***The Stuff...***



## Materials and specifications

Issues of toxicity, durability, embodied energy and Life Cycle Analysis

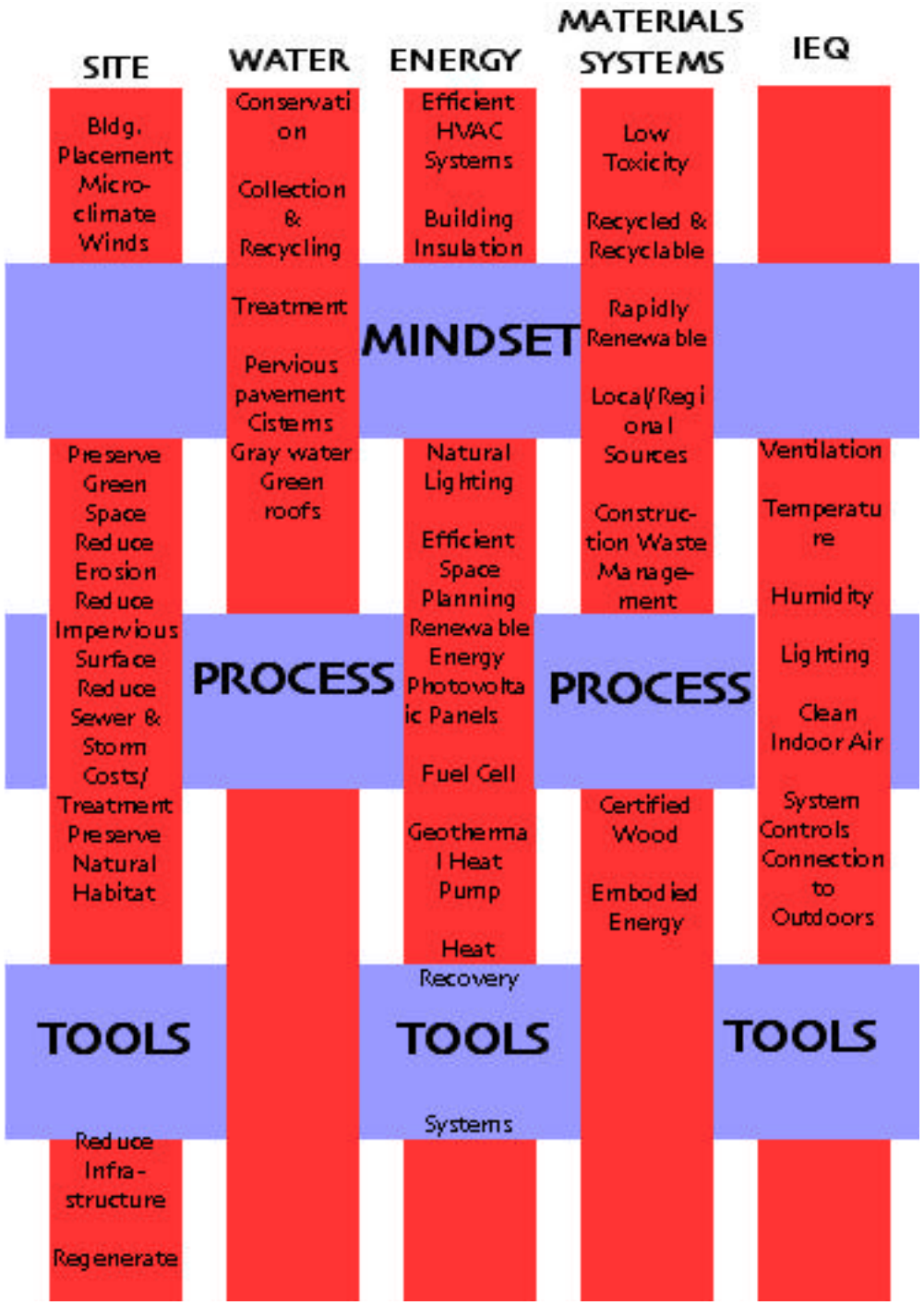
## Building systems and technologies

Gray water systems, green roofs, constructed wetlands, BIPV's

## Alternative / Renewable energy assessments

Feasibility and analysis, economies of scale and appropriate application

Tools: LEED, Greenspec, DOE2, Energy Star



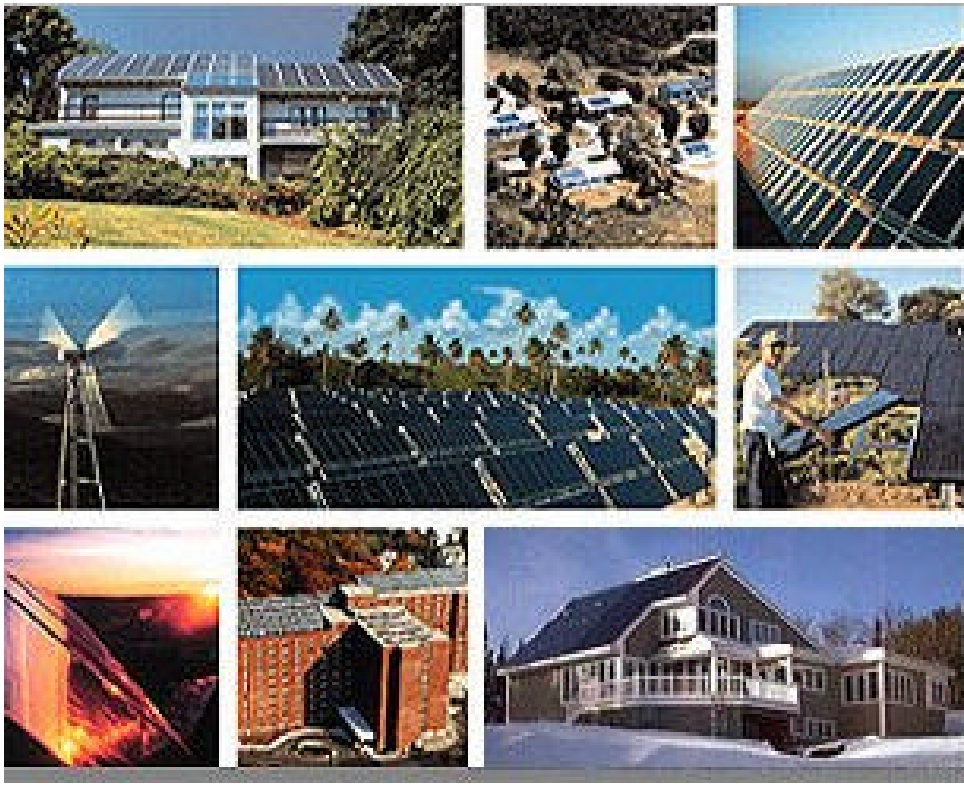

# First challenge - getting beyond the pieces.

**Back to the pieces,**

**Looking at the elements**

# ELEMENTS OF GREEN BUILDING...

1. Sustainable Sites
2. Water Efficiency
3. Energy Management
4. Materials and Resources
5. Indoor Air Quality
6. New Technologies & Renewable Sources of Energy



**SUCCESS IN SUSTAINABLE DESIGN IS ABOUT UNDERSTANDING AND MANAGING FLOWS AND SYNERGIES**

**MONEY**

**RESPONSIBILITY**

**DECISIONS**

**WATER**

**ENERGY**

**MATERIALS**

**The next level of design challenge**